

REMARKS

The Office Action of January 13, 2005, has been carefully considered. Claims 1-33 are pending in the application. Claims 1-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,130,911 to Parker et al. (hereinafter referred to as the Parker reference) in view of US Patent No. 6,356,902 to Tan et al. (hereinafter referred to as the Tan reference), and further in view of US Patent No. 6,415,396 to Singh et al. (hereinafter referred to as the Singh reference).

In overview, by the present amendment, the rejections have been traversed in view of the following remarks. Claims 1, 2, 4-7, 13, 17-20, 22, and 23 have been amended. Claims 12, 16, 29, 30, and 31-33 have been canceled. Claims 34-39 have been added. The Applicant respectfully requests reconsideration and allowance of the subject application. This Amendment is believed to be fully responsive to all issues raised in the Office Action dated January 13, 2005.

Claim Rejections Under 35 USC §103(a)

Claims 1-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Parker reference in view of the Tan reference, and further in view of Singh reference. For at least some of the reasons that follow, Applicant respectfully disagrees that the subject matter of the above claims is obvious given the above cited references.

In overview, as stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of

1 success. Finally, the prior art reference (or references when combined) must teach
2 or suggest all the claim limitations. The teaching or suggestion to make the
3 claimed combination and the reasonable expectation of success must both be
4 found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20
5 USPQ2d 1438 (Fed. Cir. 1991).

6 Further, as stated in MPEP § 2143.01, obviousness can only be established
7 by combining or modifying the teachings of the prior art to produce the claimed
8 invention where there is some teaching, suggestion, or motivation to do so found
9 either in the references themselves or in the knowledge generally available to one
10 of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir.
11 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere
12 fact that references can be combined or modified does not render the resultant
13 combination obvious unless the prior art also suggests the desirability of the
14 combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

15 Therefore, "all words in a claim must be considered in judging the
16 patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165
17 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35
18 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837
19 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

20 With this legal framework in mind, the Applicant traverses each of the
21 rejections. First, a review of different application testing techniques is provided.
22 Second, a brief review of each of the cited references is provided. Then, the
23 present invention, as claimed, is contrasted with the cited references.
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Review of Different Application Testing Techniques

In overview, before the present claimed invention, the testing of software was performed generally using one of three techniques. The three techniques included manual testing, automated testing using a script, and automated "monkey" testing. Manual testing (e.g., ad-hoc testing) was performed by a human tester. The testers explored the program and attempted to make it fail. Manual testing was very time-consuming and expensive. Automated testing using a script involved having a human tester write a script to exercise a specific feature of the application. Once the script was written, the script was run to automatically test the application. The creation of the script was the expensive part of this technique. In addition, only the features written into the script were tested. Monkey testing used a monkey program to automatically exercise the application under test. The coding of the monkey program was quite expensive, but once that was done, running the monkey program to automatically test the application under test was fairly inexpensive. The monkey program randomly selected actions or graphics elements until the test was terminated by a human tester or the monkey program encountered an unrecoverable system or programming error. Typically, monkey testing ran several days at a time. This hindered the timeliness of product development and deployment processes.

Review of the Cited References

The Parker reference is an example of automatic testing using a script. In the summary in column 4, lines 6-10, the Parker reference states the following:

The invention has essentially three major components. The first component is a test script which is written in a high level

1 programming language and contains the user events to be
2 simulated....

3 In fact, the Parker reference surmises that "the software development project of
4 the near future will consist of two interlocking development projects: the
5 development of the product software, and the development of the software (test
6 scripts) that will test the product software." Column 26, lines 32-36. The intent
7 behind the Parker reference was to "enable cross-platform testing of individual
8 applications that can be ported to other GUIs." Col. 28, lines 30-32. Thus, the
9 Parker reference described a way in which the script could be written so that the
10 script could be used to test the application on multiple platforms, such as
11 OPENLOOK, MOTIF, MACINTOSH, and MICROSOFT WINDOWS
12 environments. The Parker reference acknowledged that the designer of the test
13 suite must strike a balance between portability and specificity in order for a test
14 case to run successfully. Column 22, lines 23-25.

15 The Tan reference is directed at a method and system for storage and
16 retrieval of multimedia objects. Therefore, the Tan reference does not discuss
17 automated software testing.

18 The Singh reference, as described in the Summary, is directed at an
19 apparatus and method for generating and maintaining a regression test case set
20 directly and automatically from requirement models. The Summary further
21 defines a regression test case as a set of test cases that are used by the user to
22 verify functionality in view of modifications or additions to the system. The Singh
23 reference teaches to use a directed graph representation for automatically
24 generating an optimum number of scenarios for testing. Col. 8, lines 31-34. An
25 operator constructs the directed graph from a written body of requirements or from

1 some other requirements models or formalism. Col. 10, lines 41-44. The Singh
2 reference teaches that a user can select specific test cases in the regression test
3 case set to determine what affect, if any, the additional or new features have on the
4 remaining functionality. Col. 13, lines 7-10. The Singh reference is silent on the
5 testing of GUI applications. Rather, the Singh reference is directed at testing
6 procedural logic within a software application. In addition, the features and the
7 order for testing the features are determined at the time that the directed graph is
8 created.

9 **Traversal of Rejected Claims Based on the Cited References**

10 The present invention "provides a systematic approach to exploring
11 features of a GUI of a software application." Page 12, lines 21-22. In general, the
12 systematic approach is determined based on "the graphics elements rendered
13 during execution of a software application being tested" as recited in independent
14 Claims 1 and recited in similar manners for the other independent Claims 13, 22,
15 and 34. Thus, the determination of what features are tested are determined
16 automatically during the testing of the target application. This is in direct contrast
17 to the teachings of the Parker reference which teaches that a script is written that
18 determines what features are tested and in what order the features are tested. This
19 is also in contrast to the teaching of the Singh reference which teaches to construct
20 a directed graph which determines what features and what order the features are
21 tested. Thus, the Examiner has not cited any reference that teaches or suggests the
22 claimed invention. In fact, even if all of these references could be combined, their
23 teachings could not possibly suggest the present invention. In addition, there is no
24 suggestion or motivation to combine these references.
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1 In addition, the independent claims include other limitations that are not
2 taught or suggested by the prior art of record, such as "storing an association
3 between the executable feature and the graphics element in a map" as recited in
4 Claim 1 and others. Thus, for at least one of the above reasons, the Applicant
5 contends that the Parker reference, whether considered alone or with any
6 permissible combination of prior art of record, does not teach or suggest each
7 limitation recited in independent Claims 1, 13, 22, and 34. Therefore, the
8 Applicant respectfully submits that the §103 rejections of independent Claims 1,
9 13, 22, and 34 is improper, and respectfully requests reconsideration and
10 withdrawal of this rejection.

11 Furthermore, the dependent claims include other limitations that are not
12 taught or suggested by the prior art of record. For example, "selecting executable
13 features in a depth-first mode of operation," "selecting executable features in a
14 breadth-first mode of operation," and other limitations are not taught or suggested.
15 Therefore, for at least the above reasons, Applicant respectfully submits that the
16 §103 rejections of dependent Claims 2-11, 14-15, 17-21, 23-28 is improper, and
17 respectfully requests reconsideration and withdrawal of this rejection.

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19 **New Claims**

20 New Claims 34-39 are added herein. Applicant respectfully submits that
21 Claims 34-39 are allowable for at least the reasons discussed above.
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Conclusion

Applicant has considered the other references cited by the Examiner in the Office Action. None of these references appear to affect the patentability of Applicant's claims. By the foregoing remarks, Applicant believes that pending claims 1-39 are allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application, the Examiner is requested to contact the undersigned attorney for the Applicant at the telephone number provided below.

Respectfully Submitted,

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By: 

Marcia A. Tunheim
Reg. No. 42189
(509) 324-9256